

Social and Economic Determinants of Birth Rates in 2023: A Cross-Country Linear Regression Analysis



"LifePulse: The Heartbeat of Global Fertility"

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ABSTRACT

IN 2023, CROSS-COUNTRY BIRTH RATE DIFFERENCES ARE MAINLY EXPLAINED BY DEMOGRAPHIC FACTORS, WHILE ECONOMIC INDICATORS SHOW NO INDEPENDENT EFFECT. THIS SUGGESTS FERTILITY POLICIES SHOULD FOCUS ON LONG-TERM DEMOGRAPHIC STRATEGIES.

RESEARCH PROBLEM

"WHAT DRIVES THE RISE AND FALL OF BIRTH RATES IN 2023?"

BIRTH RATES VARY WIDELY DUE TO THE INTERACTION OF KEY SOCIAL FACTORS AND ECONOMIC CONDITIONS, SHAPING POLICIES ON POPULATION GROWTH, HEALTH (SDG 3), ECONOMIC STABILITY (SDG 8), AND INEQUALITY REDUCTION (SDG 10).

DATASET AND REGRESSION APPROACH

YEAR: 2023

SAMPLE: 65 COUNTRIES

SOURCE: OUR WORLD IN DATA (OWID)
(AGGREGATES WORLD BANK, IMF, PENN TABLE)

SOCIAL / DEMOGRAPHIC FACTORS

- AVERAGE AGE OF MOTHERS
- AGE DEPENDENCY RATIO
- CHILD MORTALITY RATE
- CRUDE DEATH RATE

ECONOMIC / FISCAL FACTORS

- GDP PER CAPITA
- GOVERNMENT REVENUE
- GOVERNMENT CONSUMPTION SPENDING

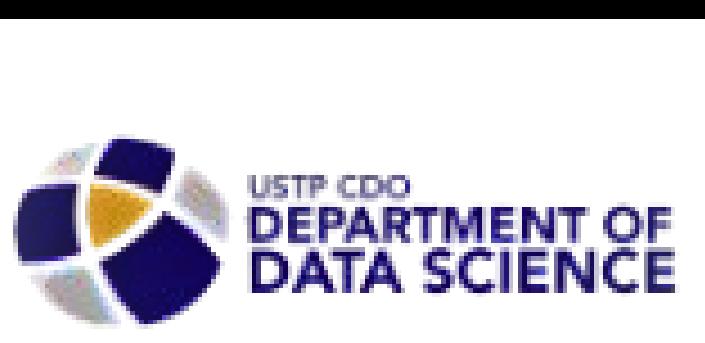
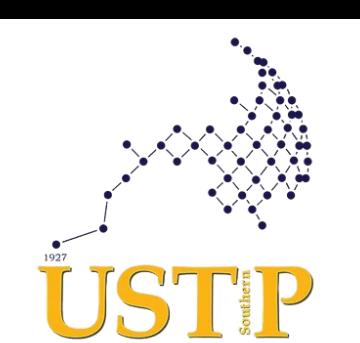
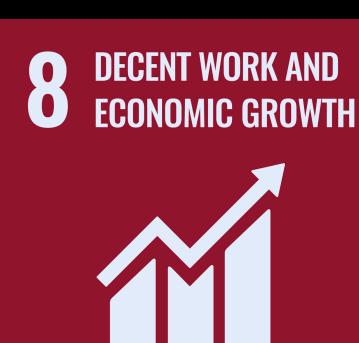
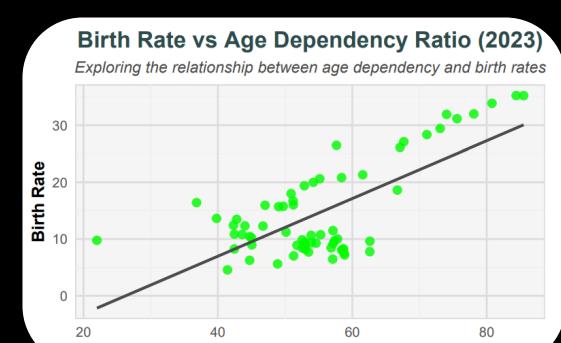
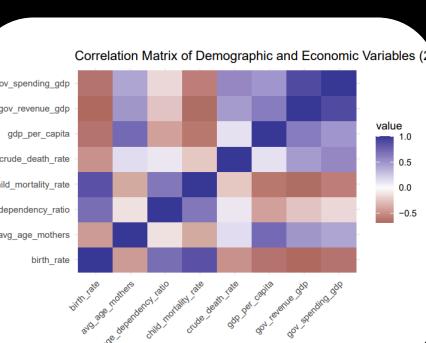
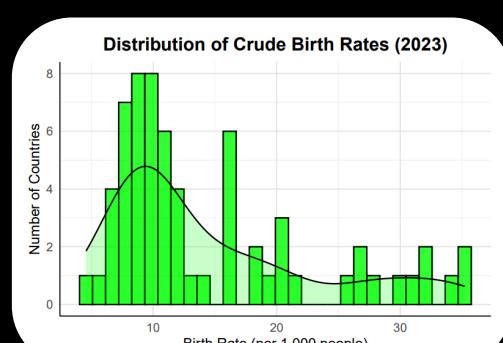
ROBUSTNESS

- SCALE-LOCATION PLOTS SHOW HETROSKEDEASTICITY
- BREUSCH-PAGAN TEST $P = 0.170$
- HC1 ROBUST STANDARD ERRORS APPLIED
- ENSURES VALID INFERENCE

CRUDE BIRTH RATE (CBR) -
BIRTHS PER
1,000
POPULATION

ECONOMETRIC MODEL: LOG-LINEAR OLS REGRESSION

LINEAR REGRESSION MODELS



KEY FINDINGS

FERTILITY DIFFERENCES IN 2023 ARE MAINLY DRIVEN BY DEMOGRAPHIC STRUCTURE AND MORTALITY, WITH ECONOMIC FACTORS SHOWING LITTLE EFFECT, AND THE MODEL EXPLAINING ABOUT 90% OF FERTILITY VARIATION.

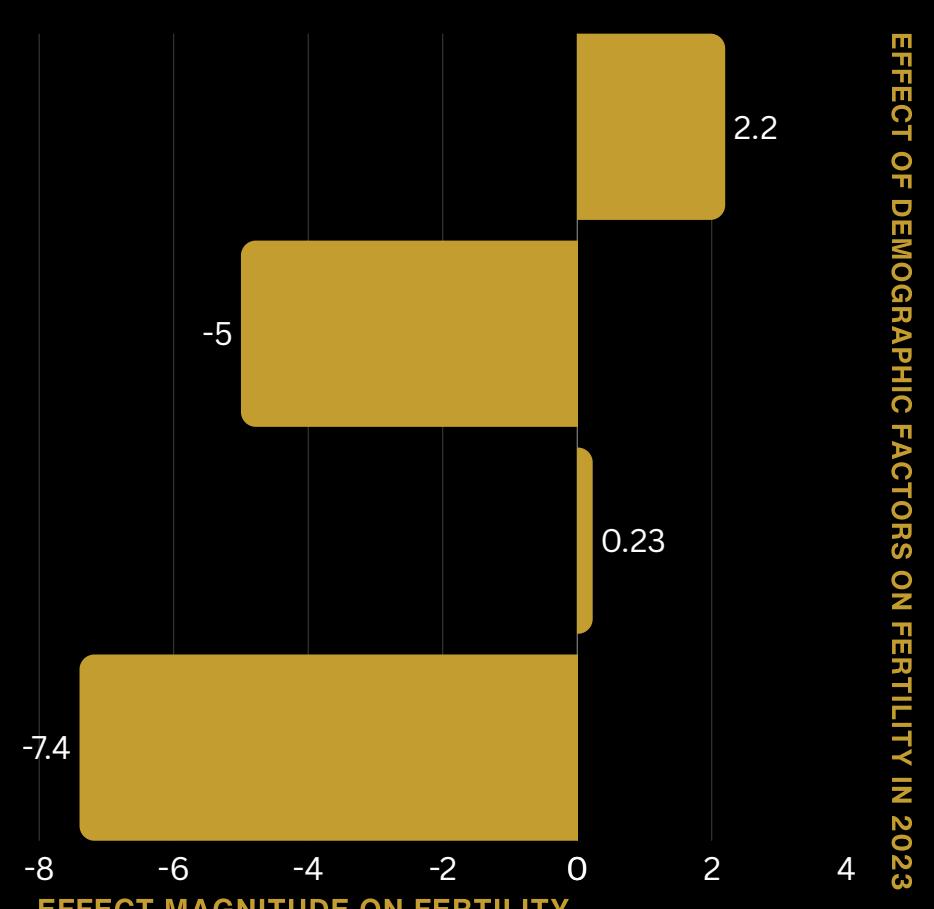
ADJUSTED R² = 0.896

AGE DEPENDENCY RATIO
2.2% PER UNIT INCREASES

MATERNAL AGE
-5% PER YEAR (DELAYED CHILDBEARING REDUCES FERTILITY)

CHILD MORTALITY (ELASTICITY)
ELASTICITY = 0.23% (HIGHER MORTALITY ENCOURAGES HIGHER FERTILITY)

CRUDE DEATH RATE
-7.4% PER UNIT (HIGHER MORTALITY REDUCES FERTILITY)



LIMITATIONS AND FUTURE DIRECTIONS

DESIGN LIMITATION

CROSS-SECTIONAL, NO CAUSALITY

SAMPLE SIZE

65 COUNTRIES

OMITTED FACTORS

CULTURAL, POLICY, BEHAVIOURAL

FUTURE RESEARCH

PANEL DATA, LAGGED EFFECTS

IMPLICATIONS

FERTILITY POLICY SHOULD PRIORITISE DEMOGRAPHIC AND HEALTH STRUCTURES, AS SHORT-TERM FISCAL MEASURES ALONE HAVE LIMITED IMPACT ON FERTILITY.

PROJECT DEVELOPMENT CYCLE

DATA COLLECTION >> VARIABLES & TRANSFORMATION >> MODEL SPECIFICATION >> ROBUSTNESS & VALIDATION >> REGRESSION OUTPUT & INTERPRETATION